

## ABoVE SDT Meeting II – July 9 - 11, 2013

Attendees: Sharon Billings, Natalie Boelman, Steve Colt, Josh Fischer, Scott Goetz, Peter Griffith, Guido Grosse, Forrest Hall, Bob Harriss, Dan Hayes, Jeremy Karchut, Eric Kasischke, Libby Larson, Dave McGuire, Juha Metsaranta, Mike Rawlins, Rob Striegl, Matthew Sturm, Colm Sweeny, Stan Wullschleger; Rapporteur: Elizabeth Hoy

### Day 1 Topics Discussed:

#### 1) Objectives of the Meeting (Eric):

- Develop the 2<sup>nd</sup> tier science questions (Day 1)
- Determine the science activities needed to address these questions (Day 2)
- Determine a strategy to complete ACEP (Day 3)

Eric K. provided a review of the work of the SDT thus far. His powerpoint presentation included an overview of the Vulnerability diagram (showing the physical processes driving changes and the changes which are seen by society). He mentioned that the LTER is looking at social-ecological systems and this could be a good intersection of the two groups. He also provided an overview of the additional 2<sup>nd</sup> Tier questions needed to complete chapter 3 and discussed the small teams that would be formed in order to produce material for the remaining portions of the ACEP.

The group discussed the plan forward and one issue which arose was that Canadian partners do not yet know much about ABoVE. SDT members questioned how ABoVE would be reaching out to that community. In response, the SDT co-chairs and leadership team detailed some of the federal and regional contacts they have been making, as well as other outreach activities which are ongoing (IBFRA, AGU, August trip to western Canada). The co-chairs asked for additional potential contacts from the group.

**Action Item:** SDT members should send the SDT leadership the names of potential contacts in Canada (academic, governmental, etc.).

**Action Item:** Consider the possibility of having a meeting/workshop with Canadian scientists during the Yukon Territories trip to Canada in August. A workshop could encourage Canadian participation in ABoVE.

**Action Item:** The SDT should consider putting together a small proposal for a workshop with Canadian scientists and sending this to Diane if they feel strongly about having a workshop and feel that a meeting of Canadian scientists with the SDT leadership and logistics group will be insufficient.

The SDT then discussed a plan to outline the Tier II research questions. Issues addressed during this discussion included: the number of questions needed, the importance of including atmospheric issues, the importance of including a fauna component in ABoVE and the need to integrate themes across

questions. The SDT then divided into 5 groups (permafrost, vegetation, hydrology, soil carbon and society) to work on drafting research questions.

### **Small Group Discussions**

Following the individual group sessions, reports were given by individuals within each of the 5 groups:

- Permafrost
- Vegetation Hydrology
- Soil Carbon
- Societal

Following the reports by the groups, the questions proposed by individual groups were collated by Dan H. for a broader discussion. Time was then spent to determine how best to combine and understand the questions across the different research groups. Two issues which arose during the discussion were 1) the importance of cultural resources in the ABoVE study domain and 2) the role of scaling in the ABoVE campaign. Nine strawman questions were developed by the group (Dan H. has the detailed questions).

## **Day 2 Topics Discussed**

### **Discussion of Tier II Research Questions**

Day 2 began with a discussion of the questions proposed by the different groups on the previous day. The goals of the discussion were to determine if the questions were correct and if they addressed the appropriate issues in enough details to justify the field campaign.

Some of the topics raised included:

- Including biotic and abiotic interactions driving the system
- Incorporating changes to the system and their drivers
- Addressing interactions within the system as drivers of change
- Including both observational and integrative synthesis questions
- Ensuring questions are written in such a way that they are specific to the Arctic-Boreal region and reflect the body of knowledge that has been collected over the past few decades but are also broad enough to use the document across agencies to garner support

Following this discussion, the SDT broke up into the working groups a second time to determine the research which would be needed to address the questions their group had developed on the previous day.

### **Small Group Reports on Research Needed**

Following the small group session, reports were given by individuals within the groups detailing the types of research needed to answer the questions they had developed for the ACEP. The groups are listed below (SDT co-chairs should have the powerpoint slides provided for each group):

- Integration
- Hydrology
- Permafrost
- Societal dimensions
- Soil carbon
- Vegetation

### **Roundtable Discussion with Local Representatives**

The SDT met with a group of local government scientists and land managers in order to have a broader perspective of the needs of the community related to ABoVE. See appendix for details of the meeting.

## **Day 3 Topics Discussed**

### **Overview of Ongoing Research in the ABoVE study region**

Peter gave a report of the data layers which have currently been collected by the CCE Office team and discussed a proposed system to allow the SDT access to the data layers (ArcGIS Online). The SDT offered suggestions of additional data layers to include in the system including soil carbon in Alaska, ISLSCIP datasets, shrub density and future vegetation. Efforts are ongoing to collect these datasets and make them available.

**Action Item:** Peter G. to host a series of webinars to familiarize the SDT with ArcGIS Online and allow the team to begin viewing the data layers as they start crafting the ACEP.

### **Overview of the Western Canada Trip this August**

Members of the SDT leadership team are planning a trip in August and September to the Northwest Territories and the Yukon Territories in Canada to meet with scientists, tour research sites, and better understand logistical issues in the region. SDT members will be kept up to date on developments through the SDT Telecons.

**Action Item:** SDT members to provide co-chairs the names and contact information for anyone they feel the SDT should attempt to meet on the trip.

Potential contacts identified during the meeting include: NSERC, Canadian Space Agency, water researchers in White Horse region (Rob to send names to co-chairs).

### **Presentation on the Guideposts for Study Design**

Libby L. provided a presentation detailing some of the key elements of the ACEP. A discussion followed regarding the timeline for ABoVE where it was addressed that a possible schedule for ABoVE would include 4-5 years of intensive field work and a few years of ramp-up and ramp-down prior to and following the campaign (5-8 years total).

**Action Item:** Investigate the cost of the different aircrafts (e.g. – C3, PR2, Global Hawk) ABoVE might use. NASA has an airborne sensor website with this information.

### **Discussion of ACEP Outline and Timeline**

The remainder of the meeting was spent discussing an outline and timeline for writing the ACEP. The notional outline provided by Diane W. was provided to the group and discussed.

#### *Current Status of the ACEP*

Chapters 1 and 2 are currently being drafted by the SDT co-chairs, although some of the small groups still need to provide information in order for the chapters to be finished.

Suggestions from the group on additional sections/items to include in the ACEP:

- Scaling issues – A number of scaling resources were suggested (BOREAS lessons learned paper on scaling (John Hammon was an author), Arctic Commission report on scaling challenges, FIFE lessons learned on scaling)
- Reasoning for NASA's lead in this campaign (focus on remote observations)
- Study domain – discussions are still ongoing as to the final study domain of ABoVE, but an issue was raised that it might be different for different questions (e.g. – permafrost vs. soil carbon domain)?
- Objectives (not just questions) should be a part of the ACEP in order to measure success/completion of the project (possibly included in Chapter 3). Possible objectives could include: make data available to the public, improve modeling, bracket uncertainty, as well as more detailed objectives specific to each question.
- Overall outcome for ABoVE

#### *Discussion of the Notional Outline*

Changes were made to the notional outline including adding cross-cutting goals and objectives to chapter 4 and moving the approach section of chapter 5 into chapter 3 (chapter 5 was then removed).

Decisions were made by the group to further organize the writing process for the remainder of the SDT's tenure. Relevant outcomes of the discussion included:

- SDT members will continue to work in their small groups (6 groups – vegetation, soil carbon, permafrost, hydrology, society and integrative)
- Individual groups will conduct a literature review and 1 page write-up related to each of the questions they have been assigned (see Dan for final draft of the 9 strawman questions)
- Telecon frequency should be increased to allow for report backs by the groups (see telecon schedule below)
- Using the notional outline as a guide, the writing process for Chapters 3 and 4 was better determined, including the appropriate issues each group should be addressing (see Dan H.'s write-up of the proposed work strategy)

**Action Item:** Have groups begin to put together Chapters 3 and 4, including describing the science questions, determining the needed research strategy, and crafting objectives to assess progress in answering the questions.

#### *Timeline for the ACEP*

The overall goal of the ACEP is for the report to be finished in the spring of 2014. A draft is needed by the end of 2013. Two additional SDT meetings are needed. The group believed these meetings should be about 2-3 months apart and determined a potential week for the next meeting (October 15-17<sup>th</sup>, 2013). The group also determined dates and times for telecons prior to the next SDT meeting (alternative Wednesdays and Thursdays every two weeks beginning in August at 1:30 pm EDT).

There was a desire amongst the group to have a draft of the ACEP by AGU so that the campaign could host a town hall discussion (or have some other type of representation at AGU) and have detailed information to give to the broader community at that time. During AGU, an “International Collaboration in the Arctic” session could possibly include a presentation about ABoVE if the ACEP is mature enough at that time.

**Action Item:** Determine ABoVE’s needed representation at AGU (town hall meeting, presentation in Arctic Collaboration session, meeting room outside of the AGU agenda, etc.). Abstracts are due August 6<sup>th</sup>.

**Action Item:** Schedule SDT Meeting 3 for October 15-17 with a possible location being Ottawa.

**Action Item:** Schedule telecons for the SDT: 1:30 pm EDT, alternating between Wednesdays and Thursdays beginning Aug 1<sup>st</sup>, and then having telecons every 2 weeks lasting for 1.5 hours. (This schedule was later amended to begin telecons on August 14<sup>th</sup> and have them last for 2 hours).

**Action Item:** Dan H. to send out questions and work strategy to the group.

## Appendix: Government Round Table Discussion Notes

### ABoVE SDT Government Round Table July 10th, 2013

Attendees: ABoVE SDT, Denny Lassuy (by telecon; NSSI), Dave Yokel (BLM), Josh Koch (USGS), Sarah Trainor (AFSC), Phillip Martin (Arctic LCC), Allison York (AFSC), Amanda Robertson (Northwest Boreal LCC), Jon O'Donnell (NPS), Mark Bertram (FWS); Rapporteur: Liz Hoy

#### Opening Remarks

The ABoVE SDT co-chairs began the meeting with an overview of the ABoVE campaign and the role of the SDT. Currently the SDT is attempting to define the research needed to understand the changes occurring in the ABoVE study domain and to understand what the consequences of change are to society. It is important for the SDT to understand the missions of agencies and groups as it relates to climate change.

#### Introductions

Individual government scientists then had the opportunity to introduce their group and discuss the research goals for their organizations.

#### Roundtable Discussion

Following the report from individual government scientists, there was time for a roundtable discussion to help the SDT and the government scientists find ways in which to collaborate and/or increase awareness of arctic and boreal issues these government individuals are currently experiencing.

Important information from the discussion is included below:

- Have the LCCs started to include issues related to increased oil and gas and the Northwest passage?
  - No, the Arctic LCC has not addressed this marine issue but has focused on terrestrial ecosystems.
  - The Bering Sea LCC is looking into creating a boat tracking system, but nothing too extensive.
- How can ABoVE access potential datasets?
  - ABoVE's data coordinator could call the lead biologist for each refuge to get datasets. There is a plan to archive the data online, but it is currently still in development.
  - The National Parks Service does have an Inventory and Monitoring Database that can also be viewed online.
  - There is a high resolution permafrost map for the Yukon River Basin. To access this dataset, contact the local person at each refuge.
- How does the changing arctic ecosystem study integrate with the Arctic LCC?
  - There is overlap between the two groups, but coordination can be an issue. The changing arctic ecosystems study is wrapping up its 5 year cycle and this represents a

good time for integration. Based on the 1-2 year operational strategies of the LCCs, 2015 would be the 1<sup>st</sup> opportunity to change course as 2013 and 2014 funds are currently committed.

- The Western LCC is having an RFP in August focused on stream and lake monitoring, but the LCCs are working to have RFPs timed across the LCCS to encourage LCC collaboration.
- If possible, make ABoVE collaborative and keep land managers involved in communications in some way (possibly a list serve)
  - **Action Item:** Develop a method to keep land managers up to date with ABoVE.
- LCC research needs have been put together and are available on LCC websites but it would be possible to synthesize this data for the SDT if it would be helpful.
  - **Action Item:** Follow up with LCC representatives about LCC research needs. It would be helpful if any potential datasets which are needed could also include desired spatial resolution.
- From a local perspective, are there challenges or opportunities with so much popularity in the arctic and boreal regions now?
  - Landcover, soils and permafrost maps would be great to have in this region and bringing in big groups could really help with these efforts. The SNAP datasets on the web have been useful for the LCCs as they are easy to download and incorporate into projects, however there is not always in depth remote sensing training available to managers.
  - Spatial data maps are important and the LCCs could be a coordinator to help meet the needs of constituents.
- Question from LCC representatives – What will be the geographic scope of ABoVE? The North Pacific LCC is interested in ABoVE but has not yet engaged because they do not know the boundaries for ABoVE.
  - Response: The ABoVE SDT is still in the process of determining the geographic scope.